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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,203	01/14/2004	Kuo-Chi Tu	TS03-265	3555
47390	7590	06/13/2005	EXAMINER	
THOMAS, KAYDEN, HOSTEMEYER & RISLEY LLP 100 GALLERIA PARKWAY SUITE 1750 ATLANTA, GA 30339			WILSON, SCOTT R	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

11 Supplemental 11

<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/757,203	TU, KUO-CHI	
	Examiner	Art Unit	
	Scott R. Wilson	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--  
All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 4/18/05 and phone interview conducted on 6/2/05.
2. ☒ The allowed claim(s) is/are 19-38.
3. ☒ The drawings filed on 14 January 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                       |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|   | 9. <input type="checkbox"/> Other _____   |

*Minhloan Tran*  
**Minhloan Tran**  
**Primary Examiner**  
**Art Unit 2826**

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Dan McClure on 6/2/2005. The application has been amended as follows: **Amend claims 28-32** to read as follows:

28. (Currently Amended) The structure of claim 29, further comprising: a second hard-mask layer over said second conducting layer wherein said second hard-mask layer is silicon oxynitride and has a thickness of between about 100 and 800 Angstroms, and wherein said second conducting layer having a pattern to form capacitor top electrodes having sidewall spacers;

a gate oxide on said substrate; and

gate electrodes over said substrate.

29. (Currently amended) A random access memory (RAM) capacitor in a shallow trench isolation comprising:

a substrate having said shallow trench isolation surrounding active device areas;

a pad oxide layer on said substrate;

a first hard-mask layer on said pad oxide layer;

recesses in said first hard-mask layer, said pad oxide layer and partially within said shallow trench isolation, said recesses extending under said first hard-mask layer to said substrate, said recesses having a bottle-shape;

a conformal first conducting layer in said recesses for capacitor bottom electrodes;

an inter-electrode dielectric layer over said bottom electrodes; and a conformal second conducting layer that fills said recesses sufficiently thick to form a

planar surface over said recesses [[wherein said sidewall spacers are an insulating material]].

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30. (Currently amended) The structure of claim ~~[[29]]~~ 28, wherein said gate oxide is a thermal oxide and has a thickness of between about 10 and 150 Angstroms.

31. (Currently amended) The structure of claim 29, further comprising a third conducting layer patterned for the gate electrodes, wherein said third conducting layer is a material selected from the group that includes polysilicon ~~[[polysilxcon]]~~, TiN, WN, MoN, WSiN, TiW, TaN, and Ta.

32. (Currently amended) The structure of claim 29, further comprising a third conducting layer patterned for the gate electrodes, wherein said third conducting layer has a thickness of between about 500 and 3000 Angstroms.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott R. Wilson whose telephone number is 571-272-1925. The examiner can normally be reached on M-F 8:30 - 4:30 Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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